





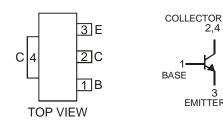
Features

- **Epitaxial Planar Die Construction**
- Complementary PNP Type Available (DZT2907A)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- Lead Free By Design/RoHS Compliant (Note 1)
- "Green" Device (Note 2)

Mechanical Data

- Case: SOT-223
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish Matte Tin annealed over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.115 grams (approximate)





Schematic and Pin Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V _{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Continuous Current	Ic	600	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation @ T _A = 25°C (Note 3)	P_d	1	W
Thermal Resistance, Junction to Ambient Air (Note 3) @T _A = 25°C	$R_{ hetaJA}$	125	°C/W
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150	°C

Notes:

- No purposefully added lead.
- Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

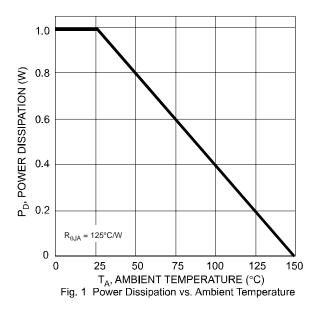
 Device mounted on FR-4 PCB pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

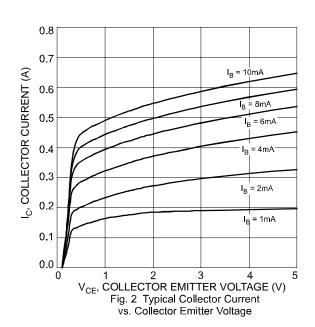


Electrical Characteristics @T_A = 25°C unless otherwise specified

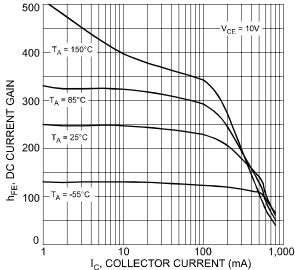
Characteristic	Symbol	Min	Max	Unit	Test Conditions	
OFF CHARACTERISTICS (Note 4)						
Collector-Base Breakdown Voltage	V _{(BR)CBO}	75	_	V	$I_C = 10\mu A, I_E = 0$	
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	40	_	V	$I_C = 10 \text{mA}, I_B = 0$	
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	6	_	V	$I_E = 10\mu A, I_C = 0$	
Collector Cut-Off Current			10	nA	$V_{CB} = 50V, I_E = 0$	
Collector Cut-On Current	I _{CBO}		10	μΑ	$V_{CB} = 50V$, $I_E = 0$, $T_A = 150^{\circ}C$	
Emitter Cut-Off Current	I _{EBO}	_	10	nA	$V_{EB} = 3V, I_{C} = 0$	
Collector-Emitter Cut-Off Current	I _{CEX}		10	nA	$V_{CE} = 60V$, $V_{EB(off)} = 3V$	
ON CHARACTERISTICS (Note 4)						
Collector-Emitter Saturation Voltage	V	_	0.3	V	$I_C = 150 \text{mA}, I_B = 15 \text{mA}$	
Concetor-Emitter Cataration Voltage	V _{CE(SAT)}	_	1.0	V	$I_C = 500 \text{mA}, I_B = 50 \text{mA}$	
Base-Emitter Saturation Voltage	V _{BE(SAT)}	0.6	1.2	V	$I_C = 150 \text{mA}, I_B = 15 \text{mA}$	
Dase Emilier Galdration Voltage	VBE(SAT)	_	2.0	V	$I_C = 500 \text{mA}, I_B = 50 \text{mA}$	
		35	_	>	$I_C = 0.1 \text{mA}, V_{CE} = 10 \text{V}$	
	h _{FE}	50	_		$I_C = 1 \text{mA}, V_{CE} = 10 \text{V}$	
		75	_		$I_C = 10mA, V_{CE} = 10V$	
DC Current Gain		35	_		$I_C = 10 \text{mA}, V_{CE} = 10 \text{V}, T_A = -55 ^{\circ}\text{C}$	
		100	300		I _C = 150mA, V _{CE} = 10V	
		50	_		$I_C = 150 \text{mA}, V_{CE} = 1 \text{V}$	
		40	_		$I_C = 500 \text{mA}, V_{CE} = 10 \text{V}$	
SMALL SIGNAL CHARACTERISTICS						
Transition Frequency	f _T	300		MHz	$I_C = 20 \text{mA}, V_{CE} = 20 \text{V}, f = 100 \text{MHz}$	
Output Capacitance	C_{obo}	_	8	pF	$V_{CB} = 10V, I_{E} = 0, f = 1MHz$	
Input Capacitance	C_{ibo}	_	25	pF	$V_{EB} = 0.5V$, $I_{C} = 0$, $f = 1MHz$	
SWITCHING CHARACTERISTICS						
Delay Time	t _d	_	10	ns	$V_{CE} = 30V$, $V_{EB(off)} = 0.5V$, $I_{C} = 150mA$, $I_{B1} = 15mA$	
Rise Time	t _r	_	25	ns		
Storage Time	t _s	_	225	ns	$V_{CE} = 30V$, $I_C = 150mA$, $I_{B1} = I_{B2} = 15mA$	
Fall Time	t _f	_	60	ns		

Notes: 4. Measured under pulsed conditions. Pulse width = 300 μ S. Duty Cycle, d< = 2%.

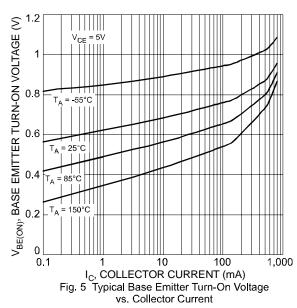


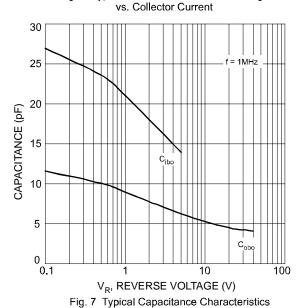






I_C, COLLECTOR CURRENT (mA)
Fig. 3 Typical DC Current Gain vs. Collector Current





0.6 V_{CE(SAT)}, COLLECTOR EMITTER SATURATION VOLTAGE (V) 0.4 0.2 0.01 1,000 0.1 10 100 I_{C} , COLLECTOR CURRENT (mA)

Fig. 4 Typical Collector Emitter Saturation Voltage vs. Collector Current

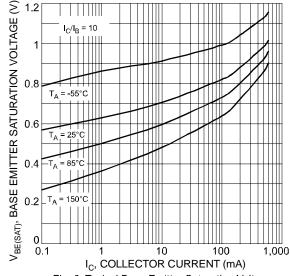
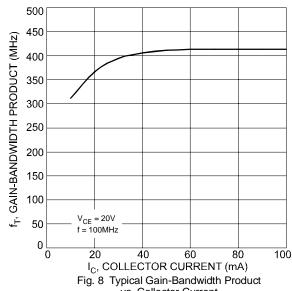


Fig. 6 Typical Base Emitter Saturation Voltage vs. Collector Current



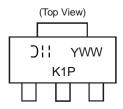


Ordering Information (Note 5)

Device	Packaging	Shipping
DZT2222A-13	SOT-223	2500/Tape & Reel

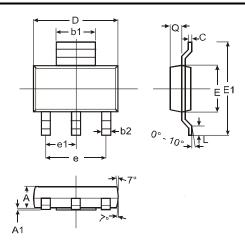
Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



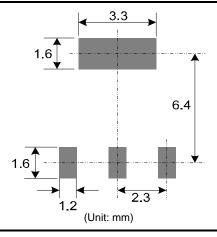
K1P = Product Type Marking Code YWW = Date Code Marking Y = Last Digit of Year ex: 7 = 2007 WW = Week Code 01-52

Package Outline Dimensions



SOT-223					
Dim	Min	Max	Тур		
Α	1.55	1.65	1.60		
A1	0.010	0.15	0.05		
b1	2.90	3.10	3.00		
b2	0.60	0.80	0.70		
O	0.20	0.30	0.25		
D	6.45	6.55	6.50		
Е	3.45	3.55	3.50		
E1	6.90	7.10	7.00		
е	_		4.60		
e1	_	_	2.30		
L	0.55	0.75	0.65		
ø	0.84	0.94	0.89		
All Dimensions in mm					

Suggested Pad Layout: (Based on IPC-SM-782)



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